

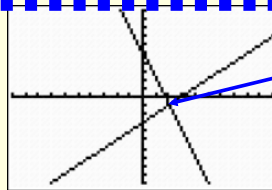
**Date:** 3/17/10

**Title:** 5.2 SUBSTITUTION

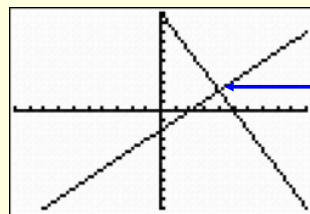
**Objective:**

To solve a system of equations using the **substitution** method.

1) 
$$\begin{cases} y = x - 3 \\ y = -3x + 5 \end{cases}$$

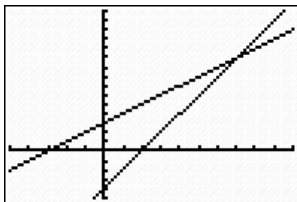


2) 
$$\begin{cases} 4x + 2y = 20 \\ y = -2 + x \end{cases}$$



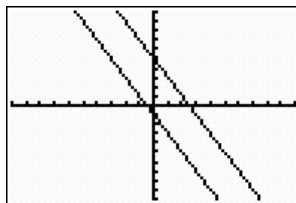
**How many solutions?**

$$\begin{cases} y = x + 3 \\ y = 2x - 4 \end{cases}$$



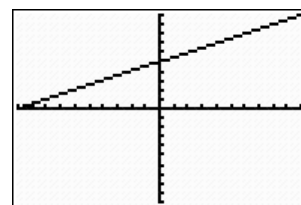
\_\_\_\_\_

$$\begin{cases} y = -2x + 5 \\ y = -2x - 1 \end{cases}$$



\_\_\_\_\_

$$\begin{cases} y = \frac{1}{2}x + 5 \\ y = \frac{1}{2}x + 5 \end{cases}$$



\_\_\_\_\_

Talk to your partner and  
list some pros and cons about  
using the graphing method to solve systems.

PROS

CONS

### *Basic Substitution Practice*

$$f(x) = x^2 + 9$$

Find  $f(-9)$

$$y = -3x + 7$$

Solve for y when  $x = 4y - 2$

$$y = \frac{1}{3}x + 3$$

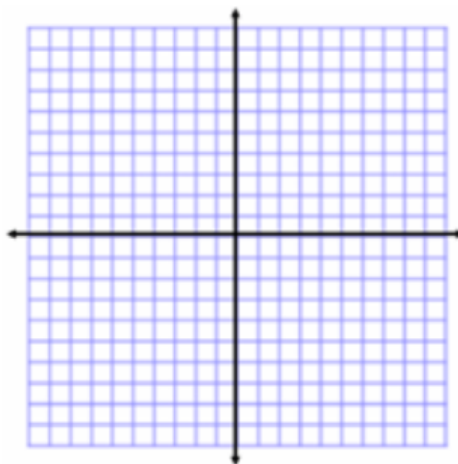
Solve for y when  $x = 6y + 9$

Now let's try  
substituting to solve a  
system:

$$\begin{cases} y = 2x - 6 \\ y = 4 \end{cases}$$

Let's check our answer with a graph:

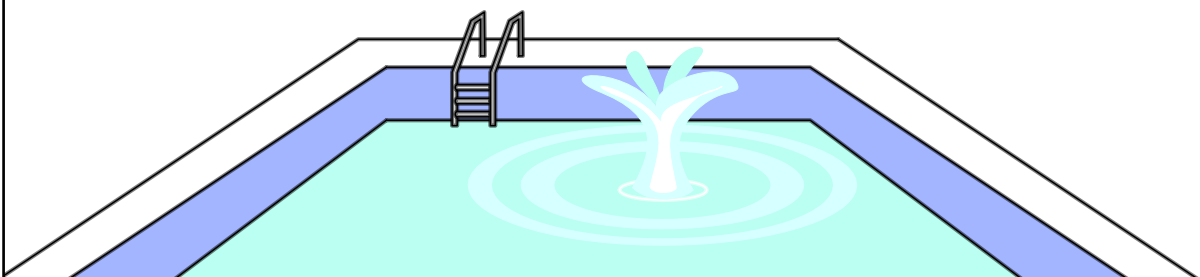
$$\begin{cases} y = 2x - 6 \\ y = 4 \end{cases}$$



**W2L:**

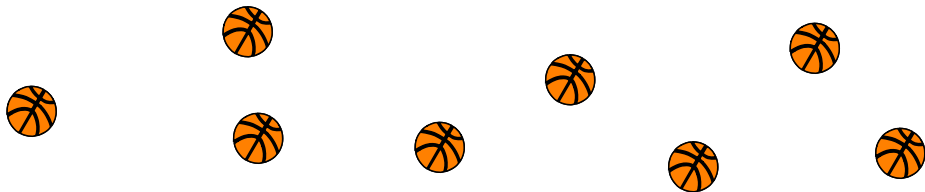
Solving a system using substitution is \_\_\_\_\_  
*(easy, kinda hard, really hard)* because...

The perimeter of a rectangular swimming pool is 120 yards.  
Two times the length is equal to 10 times the width.



**Find the length and width of the pool!**

PULL FOR ANSWER



Mrs. Evans was the star forward on her high-school basketball team. In one game, her field-goal total was 23 points, made up of 2-point and 3-point baskets. If she made 4 more 2-point baskets than 3-point baskets, how many of each type of basket did she make?

SYSTEM

ANSWER

Solve the system.

$$\begin{cases} y = x + 3 \\ y = 2x - 4 \end{cases}$$

SOLUTION:

(7, 10)

Solve the system.

$$\begin{cases} x - y = 3 \\ 2x + 2y = 2 \end{cases}$$

SOLUTION:

(2, -1)

If you saw one of these equations in a system, would you choose to solve with graphing or substitution??

WHY???

GRAPHING		SUBSTITUTION	
$y = x$	$x = 4 + y$	$x = 2y$	$y = 2$
$y - 3x = 7$	$y = -4x - 3$	$y = 2x + 3$	$2x + y = 10$

## Solve the system

$$2x - 3y - z = 12$$

$$y + 3z = 10$$

$$z = 4$$

SOLUTION:

$$X = 5$$

$$Y = -2$$

$$Z = 4$$

**W2L:**

I prefer to solve a system by \_\_\_\_\_  
(*graphing, substitution*) because...

**Out:** Describe when you would use substitution and when you would use graphing when solving a system of equations.

*I would use graphing...*

**Summary:** *I still have questions about...*

**HOMEWORK:**  
**SOLVING WITH SUBSTITUTION WORKSHEET**